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Navigating FEMA Regulated Streams

National Floodplain Insurance Program Compliance

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Agenda

- National Flood Insurance Program (NFIP)
- Conditional Letters of Map Revision (CLOMR)
- Memorandum of Agreement (MOA) between NCDOT and NCFMP
- Small Pipe Replacement on FEMA Streams
- Hydraulics/FEMA Coordination Team
- Submittal Process
- Emergency Replacements

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National Flood Insurance Program (NFIP)

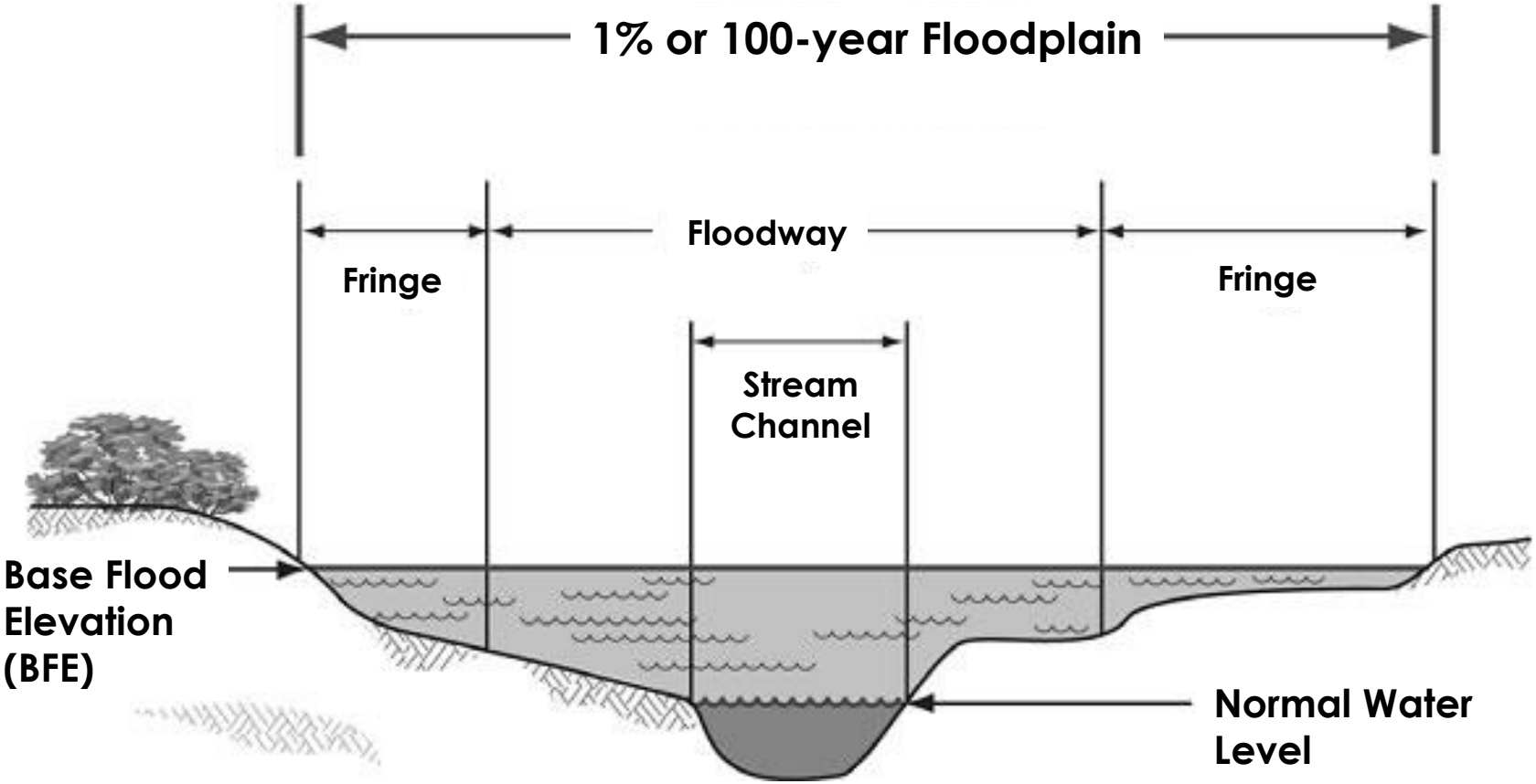
Introduction

- The goal of the National Flood Insurance Program (NFIP) is to reduce the impact of flooding on private and public structures.
- Approximately 85% of the streams across the State are designated as being in a FEMA Flood Hazard Area.
- Any work within a designated Flood Hazard Area must be in compliance with the National Flood Insurance Program (NFIP).
    - This includes road crossings or lateral encroachments inside of a regulated floodway or non-encroachment area.

NFIP Key Regulations and Orders

- Title 44 CFR parts 59, 60, 65 and 70
  - Contains the Code of Federal Regulations that define the NFIP.
- Federal Executive Order 11988
  - States all federal agencies shall follow the NFIP guidelines and work with FEMA to do so.
- NC Executive Order 123
  - The DOT shall apply appropriate standards and management to comply with the floodplain management policy relevant to highway construction within floodplains.

Floodplain Representation



Changes to the BFE must be documented and approved through a Map Revisions procedure.

NC Floodplain Mapping Program

- The State of North Carolina is designated as a Cooperating Technical State (CTS).
  - This means the State of North Carolina, as managed by NC Floodplain Mapping Program (NCFMP), assumes primary ownership and responsibility of the NFIP.
- NCFMP administers the three key components of the NFIP: Flood Insurance, Floodplain Management and Flood Hazard Mapping
  - This includes the Review and Approval of revisions to floodplain mapping products.

NCDOT Responsibilities to the NFIP

- All Map Revisions (including adding, changing, replacing, or removing any structure) on a FEMA regulated stream must be documented and receive approval through a Map Revision.
- The type of Map Revision protocol used is based on the nature and the magnitude of the changes in the BFE (Base Flood Elevation) and site conditions between the proposed and existing structures.

NCDOT Responsibilities to the NFIP

- Map Revision protocols generally used by NCDOT are:
  - MOA - Memorandum of Agreement between NCDOT and NCFMP
  - CLOMR – Conditional Letter of Map Revision (used when the MOA cannot be applied)
  - LOMR – follows CLOMR and certain MOA types following completion of the structure.

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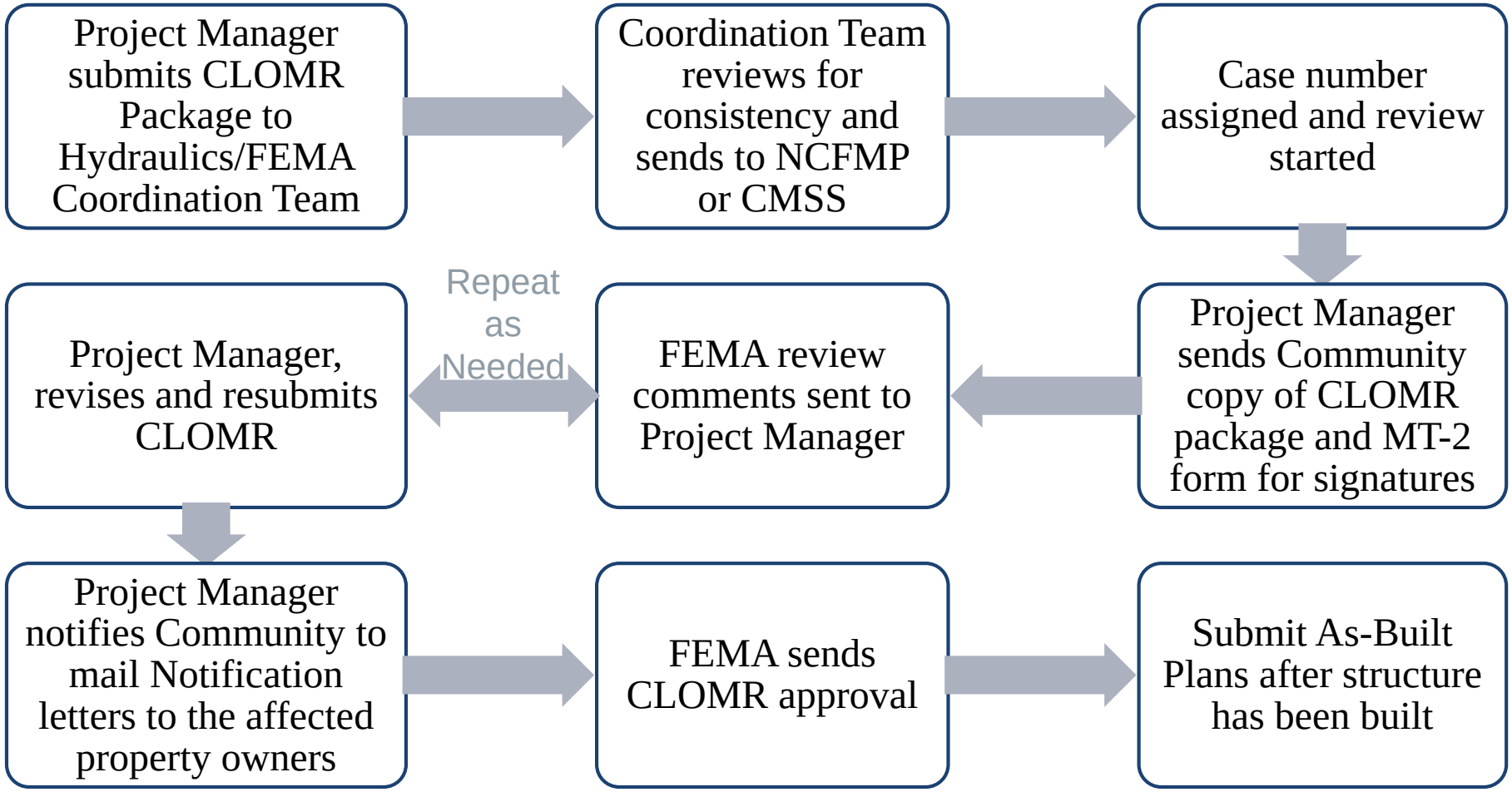
Conditional Letter of Map Revision (CLOMR)

Conditional Letter of Map Revision (CLOMR)

- A request for FEMA to review the proposed project and determine if it would meet the minimum NFIP standards prior to beginning of construction.
- In effect it is a guarantee that if the project is built as submitted, that a Letter of Map Revision (LOMR) will be issued when the project is completed.
- "As-Built" certification and other data must be submitted to support the revision request within 6 months of the completion of the structure.

Simplified CLOMR Flowchart



Letter of Map Revision(LOMR)

- An official revision to a FIRM (Flood Insurance Rate Map) that can reflect changes to the floodplains, Base Flood Elevations (BFEs), or regulatory floodways depicted on a community's FIRM.

CLOMR to LOMR

- A LOMR will be applied for once the As-Built Plans have been received from Division staff.
  - In the event the As-Built plans deviate from the design plans used in obtaining the CLOMR, then the design engineer will have to modify the previously approved CLOMR to reflect the As-Built Plans. This can be addressed with the LOMR submittal if necessary.
- NCDOT agrees to resubmit the model along with the As-Built Plans and to cost share with NCFMP the applicable expenses involved with processing a LOMR.

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Memorandum of Agreement (MOA) between NCDOT and NCFMP

Memorandum of Agreement (MOA)

The Memorandum of Agreement (MOA) between NCDOT and NCFMP is a specialized Map Revision protocol that ensures compliance with Federal and State Regulations while streamlining the LOMR process for the management of no-rise, decreases or increases in the Base Flood Elevation (BFE) and associated flood map changes.

MOA

- Compliance with the NFIP can be obtained via one of 12 distinct types that are identified in the MOA.
- The MOA Type utilized is based on:
  - the nature and the magnitude of the changes in the BFE between the proposed and existing conditions
  - the study method (Detailed, Limited Detailed or Redelineated) of the Flooding Source(e.g. rivers, streams,…)

MOA Types

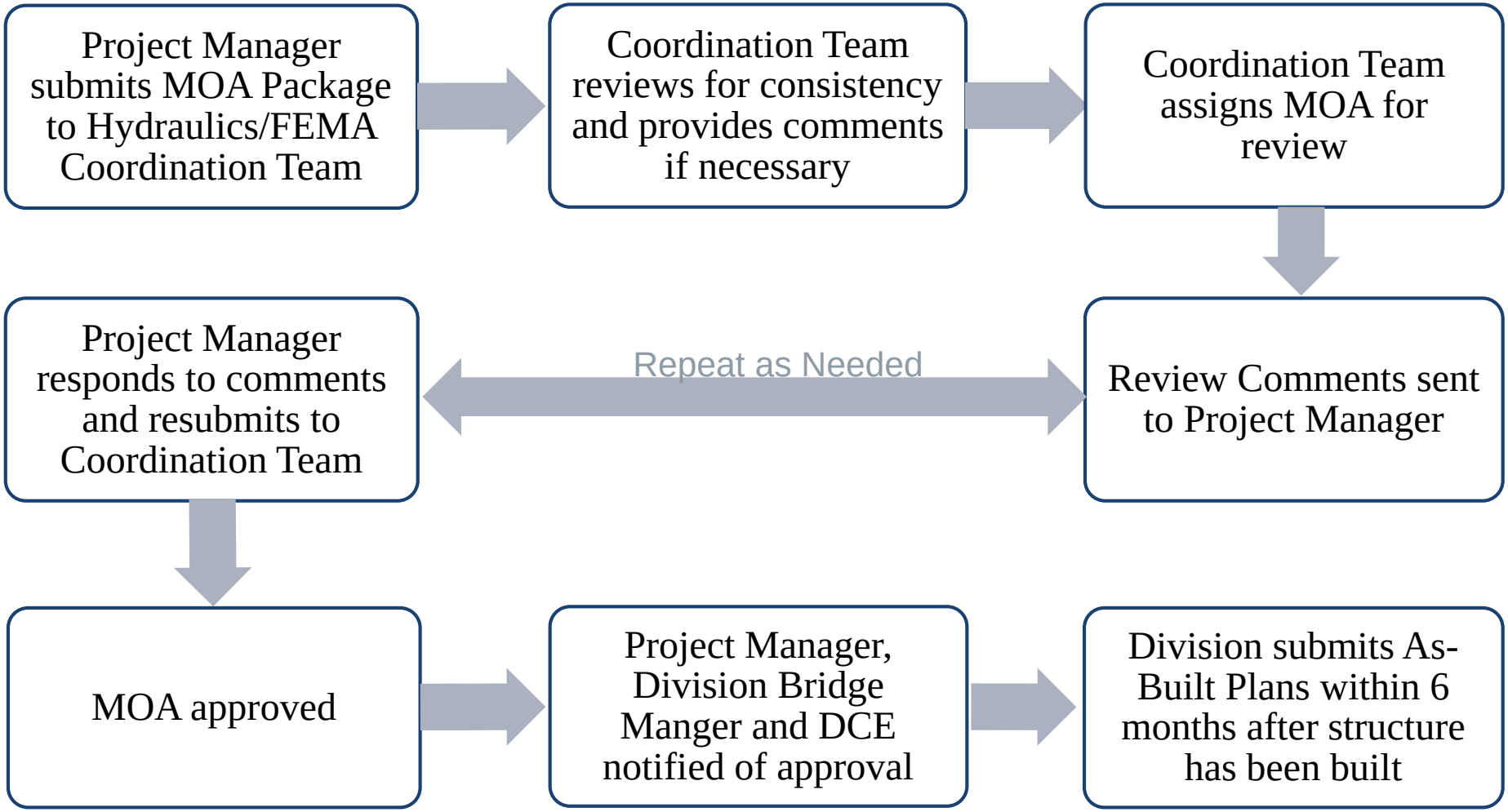
MOA Type	Study Type	Change in BFE	Approval Authority	Additional Information
1	Any	Decrease or Increase ≤ 0.1’	State Hydraulics Engineer	
2a	Any	Decrease > 0.1’ to < 0.5’	State Hydraulics Engineer	
2b†	Any	Decrease ≥ 0.5’	NCFMP	
2c	Study with incomplete, erroneous or missing data	6 section analysis showing no BFE increase from existing to proposed conditions.	NCFMP	**NCFMP Concurrence Required**
2d†	Limited	Increase > 0.1' to < 0.5'	State Hydraulics Engineer	Cannot adversely impact properties or buildings.
2e	Limited	Increase ≥ 0.5' to ≤ 1.0	NCFMP	Cannot adversely impact properties or buildings.

† If a project qualifies for both a 2b and a 2d , submit project as a type 2b

MOA Types

MOA Type	Study Type	Change in BFE	Approval Authority	Additional Information
2f	Limited	Increase > 1.0' & within ROW	NCFMP	Only applies if increase stays within ROW. Approval required by FMP Director and SHE.
2g	Detailed	Increase > 0.1' within ROW	NCFMP	Only applies if increase stays within ROW. Approval required by FMP Director and SHE.
3a	Approved CLOMR	n/a	NCFMP	Submit As-Built Plans for approved CLOMRs for which the FIRM mapping is still current.
3b	Approved CLOMR	n/a	NCFMP	Submit As-Built Plans for approved CLOMRs for which the FIRM mapping has been modified since the issuance of the CLOMR approval.
3c	Any	Consultation when CLOMR is required or published flood data are scientifically or technically incorrect	NCFMP	Engineer may initiate a pre-application consultation to discuss H&H design issues with a NCFMP representative.
4a	Approved MOA or CLOMR	n/a	NCFMP	Field survey data from As-Built plans deviate from the design plans and flood models.

Simplified MOA Flowchart



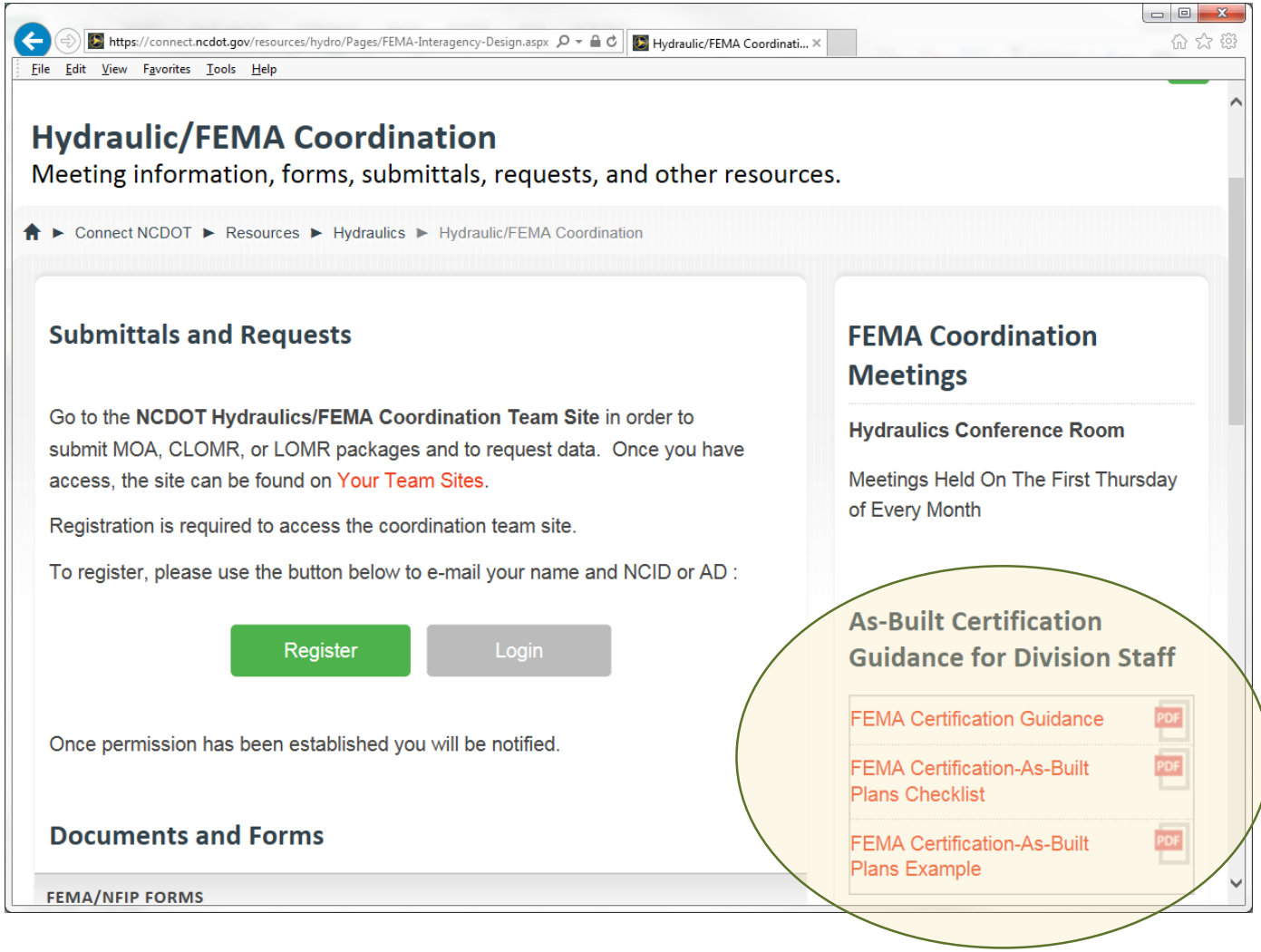
As-Built Plans

- Depending on the MOA Type and with NCFMP consultation, As-Built Plans shall:
  - be used to prepare & process a Letter of Map Revision (LOMR)

    or
  - be incorporated into future NCFMP flood map studies and FIRM updates.

As-built Certification Guidance for Division Staff

https://connect.ncdot.gov/resources/hydro/Pages/FEMA-Interagency-Design.aspx



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Small Pipe Maintenance

Small Pipe Maintenance

- NCFMP involvement for small pipe maintenance in a designated FEMA Flood Hazard Area is required.
- The submittal data required depends on the type of change to the pipe flow area and/or the type of change in the roadway grade.

Submittal Requirements

- If the pipe replacement size and roadway grade do not change from the existing conditions, submit:
  - Small Pipe Submittal Form
- If the pipe flow area decreases *(e.g. installing a pipe liner)* from the existing conditions (regardless of grade change), submit:
  - Small Pipe Submittal Form
  - HEC-RAS model of Proposed Conditions and it's comparison with the Corrected Effective Model showing No Change to the BFE. (Note: If the BFE changes an MOA or CLOMR will be required)

Submittal Requirements

- If the pipe replacement size increases from the existing and
  - the roadway grade does not change, submit:
    - Small Pipe Submittal Form
    - Supporting Hydraulic Computation Forms (see website for examples)
  - the grade is raised, submit:
    - Small Pipe Submittal Form
    - HEC-RAS model of Proposed Conditions and it's comparison with the Corrected Effective Model showing No Change to the Base Flood Elevation (BFE). (Note: If the BFE changes, an MOA or CLOMR will be required.)

Follow up

Please notify Hydraulics/FEMA Coordination Team if the pipe is not replaced or if an alternate pipe size is used.

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Hydraulics/FEMA Coordination Team

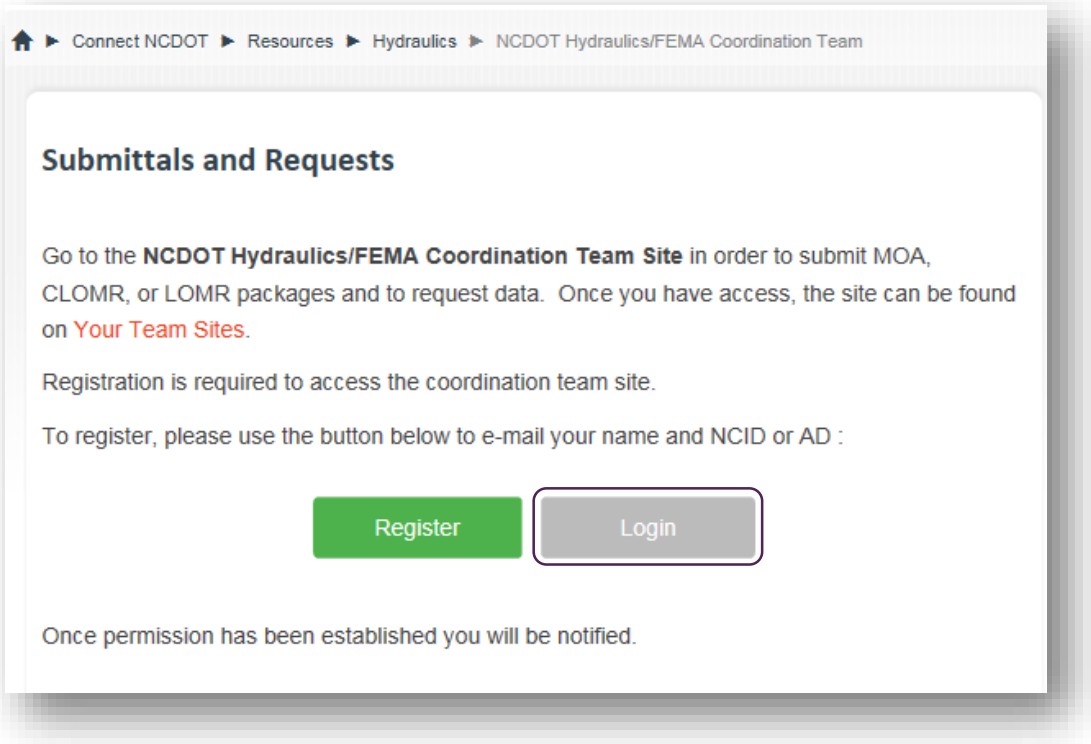
Hydraulics/FEMA Coordination Team

The NCDOT Hydraulics/FEMA Coordination Team manages submittals and provides assistance to project managers and design engineers. Some of the teams responsibilities include:

- Moderate monthly coordination meetings to track project progress and discuss FEMA/MOA related issues, concerns, problems, resolution, etc. (teleconferencing access for MOA meetings is available).
- Facilitate efficient communication statewide with Division offices, DOT contractors, NCFMP, CMSS, and others to ensure timely responses and dissemination of important information.
- Develop guidance for FEMA/MOA concerns as needed for DOT staff and PEFs.
- Provide technical and administrative support.

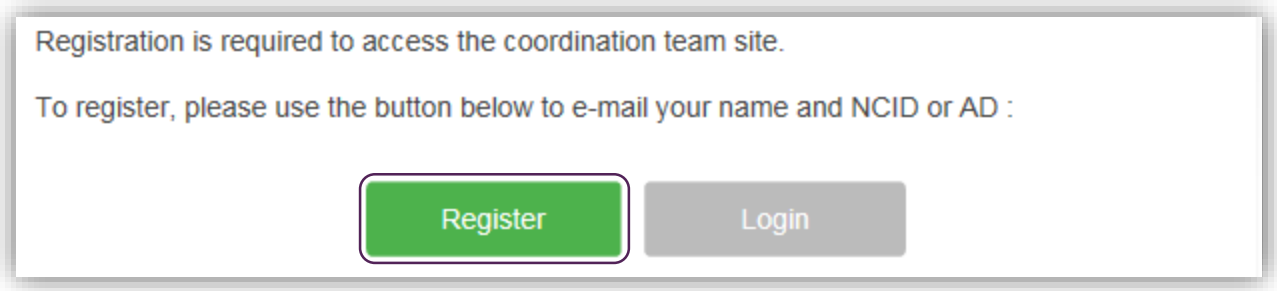
Navigating to the Team Site

- From the Hydraulics Connect website go to the NCDOT Hydraulics/FEMA Coordination Team page.
- Select **Login**



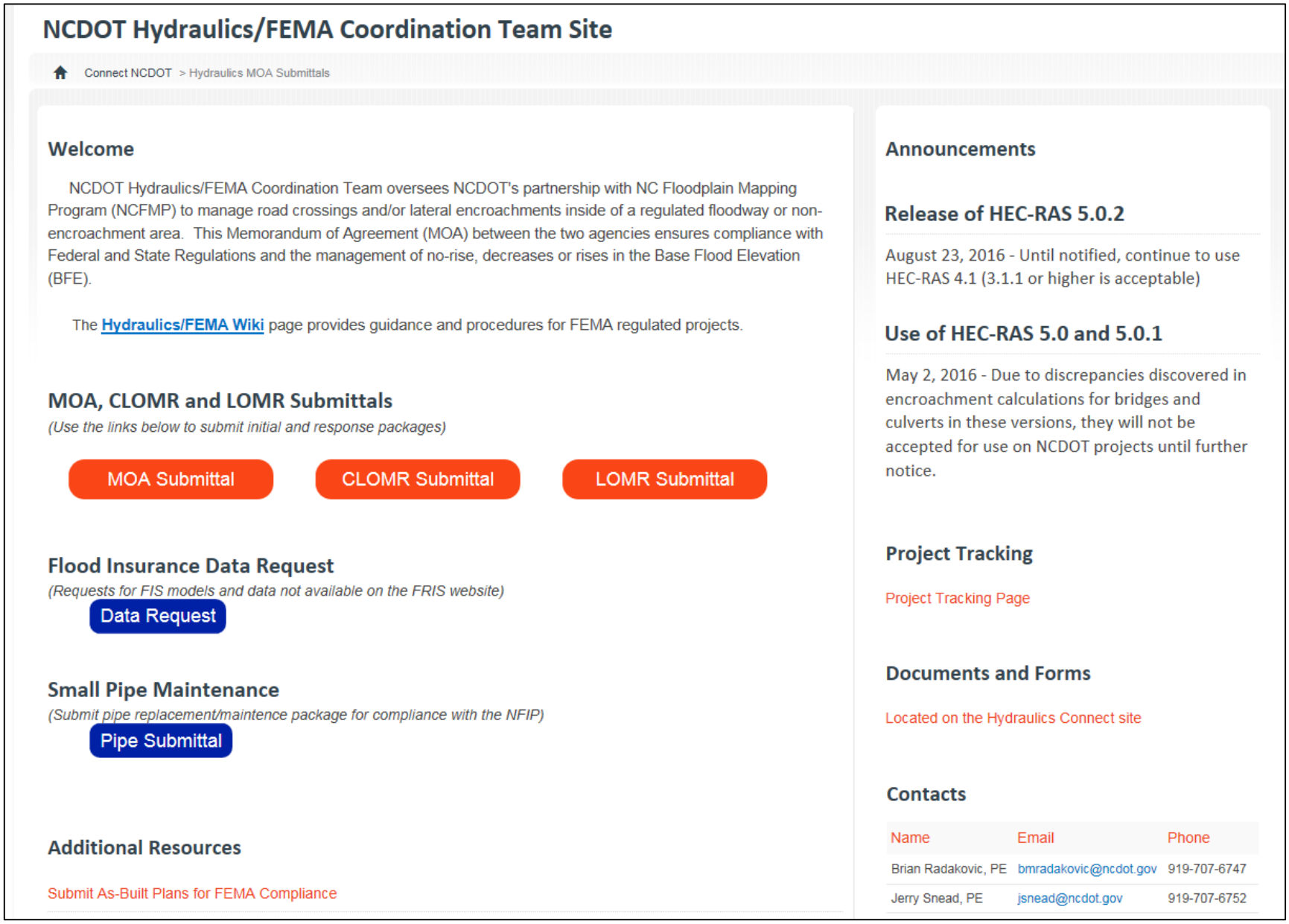
Register for Access to Team Site

- Select **Register** from the NCDOT Hydraulics/FEMA Coordination Team page.



- Fill out the provided form and in the Comment section please provide:
  - Your NCID, if you don't have one please create an NCID account (https://connect.ncdot.gov/help/Pages/first-time-user.aspx).
  - Brief reason for request (ex. managing hydraulic design for Division 1).
- Once permission has been established you will be notified.

Hydraulics/FEMA Coordination Team Site



NCDOT Hydraulics/FEMA Coordination Team Site

Connect NCDOT > Hydraulics MOA Submittals

Welcome

NCDOT Hydraulics/FEMA Coordination Team oversees NCDOT's partnership with NC Floodplain Mapping Program (NCFMP) to manage road crossings and/or lateral encroachments inside of a regulated floodway or non-encroachment area. This Memorandum of Agreement (MOA) between the two agencies ensures compliance with Federal and State Regulations and the management of no-rise, decreases or rises in the Base Flood Elevation (BFE).

The Hydraulics/FEMA Wiki page provides guidance and procedures for FEMA regulated projects.

MOA, CLOMR and LOMR Submittals

(Use the links below to submit initial and response packages)

MOA Submittal | CLOMR Submittal | LOMR Submittal

Flood Insurance Data Request

(Requests for FIS models and data not available on the FRIS website)

Data Request

Small Pipe Maintenance

(Submit pipe replacement/maintence package for compliance with the NFIP)

Pipe Submittal

Additional Resources

Submit As-Built Plans for FEMA Compliance

Announcements

Release of HEC-RAS 5.0.2

August 23, 2016 - Until notified, continue to use HEC-RAS 4.1 (3.1.1 or higher is acceptable)

Use of HEC-RAS 5.0 and 5.0.1

May 2, 2016 - Due to discrepancies discovered in encroachment calculations for bridges and culverts in these versions, they will not be accepted for use on NCDOT projects until further notice.

Project Tracking

Project Tracking Page

Documents and Forms

Located on the Hydraulics Connect site

Contacts

Name	Email	Phone
Brian Radakovic, PE	bmradakovic@ncdot.gov	919-707-6747
Jerry Snead, PE	jsnead@ncdot.gov	919-707-6752

Site Components

- Announcements - notify users of any new procedures or guidelines
- Calendar - times for FEMA Coordination Meetings (usually held the first Thursday of each month)
- Discussion Board - ask the Coordination Team any questions you may have
- Hydraulics/FEMA Wiki – a great source for submittal procedures, MOA Guidance and various HEC-RAS topics
- Project Tracking Page - reports on the status of submitted MOAs
- Additional Resources - links to assist with FEMA Coordination
- MOA,CLOMR and LOMR Submittals – submit initial and response MOAs
- Flood Insurance Data Requests – request data not available on FRIS
- Small Pipe Maintenance – submittals for pipe replacement/maintenance

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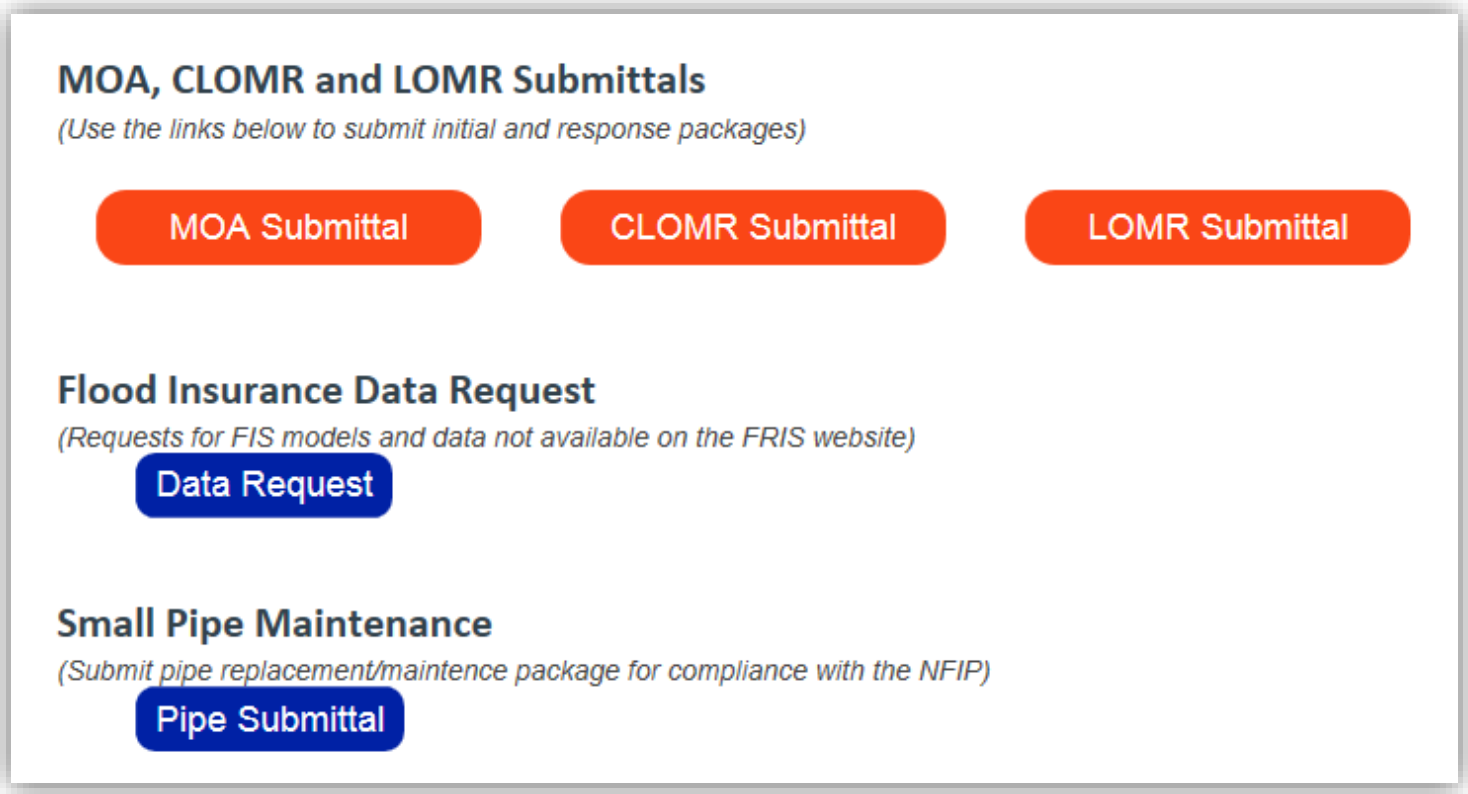
Submittal Process

MOA/CLOMR/LOMR - Initial and Response Submittals

- It is the responsibility of the submitting engineer to make sure all required data is provided, MOAs must follow the Submittal Package Requirements. (Current forms can be found on the Hydraulics Unit Connect website or on FEMAs website).
- Once the review is complete, the coordination team will send the review comments or approval notification to the submitting engineer and other appropriate staff.

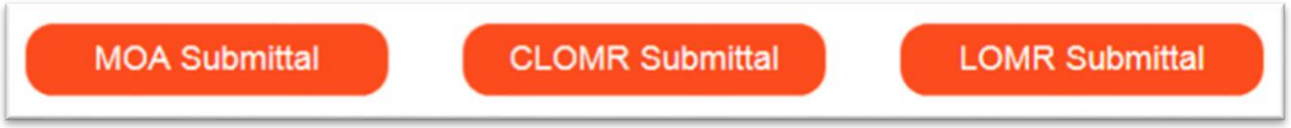
Submittal Forms

- Use the links below to submit MOA, CLOMR/LOMR, Small Pipe and model requests to the Coordination Team.

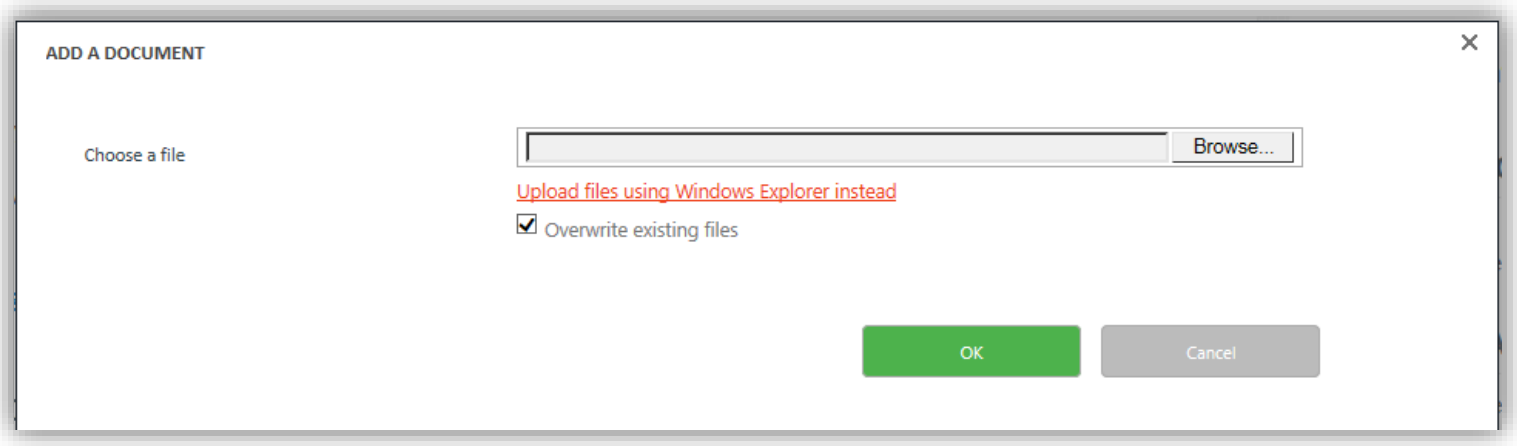


MOA/CLOMR/LOMR - Submittals

1. Zip the submittal package (*don't forget to include the Transmittal Form*)
2. Select the submittal type

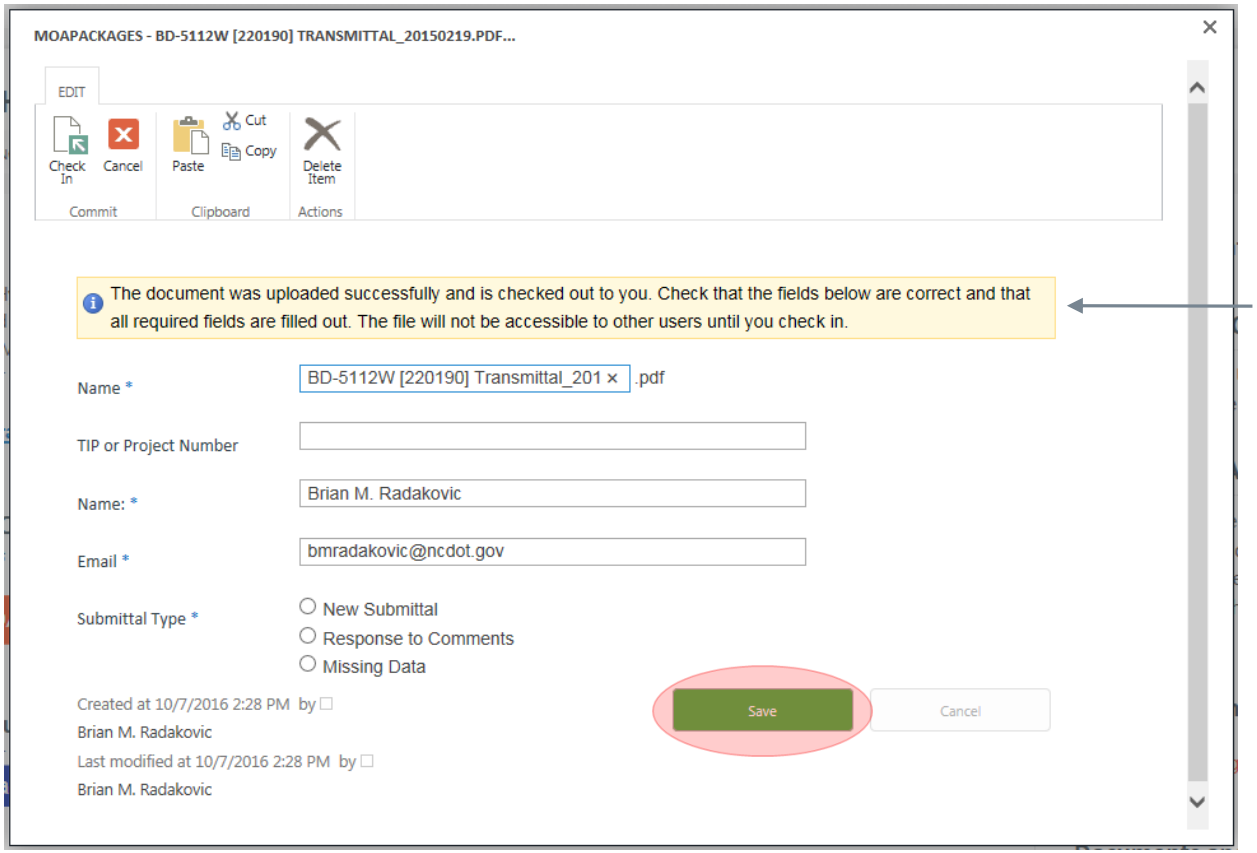


3. Select "Browse…", then choose the zip file created in step 1, then select OK



MOA- Submittals

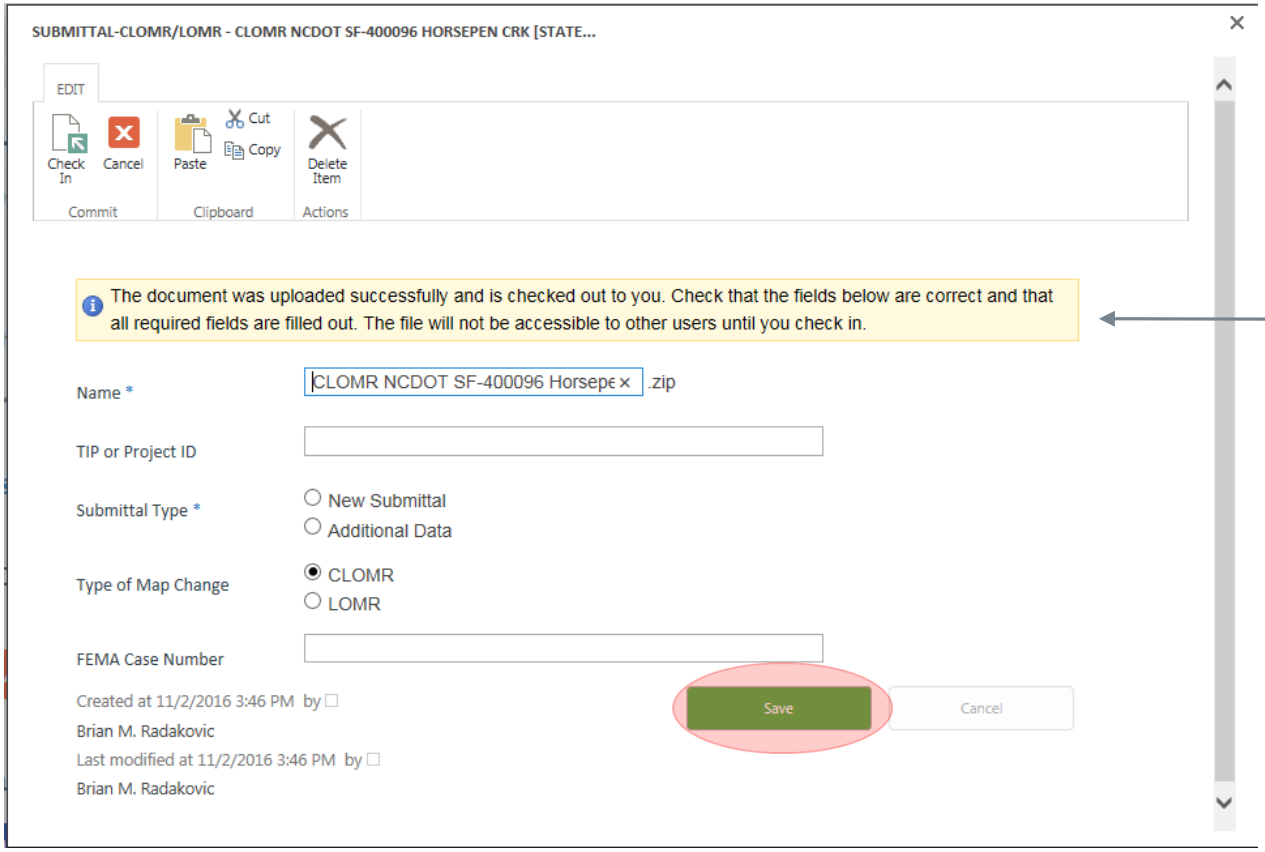
- After uploading the zip file, a form will pop up for you to fill out; once complete, select “Save”



Note: There is no need to “check-in” the document.

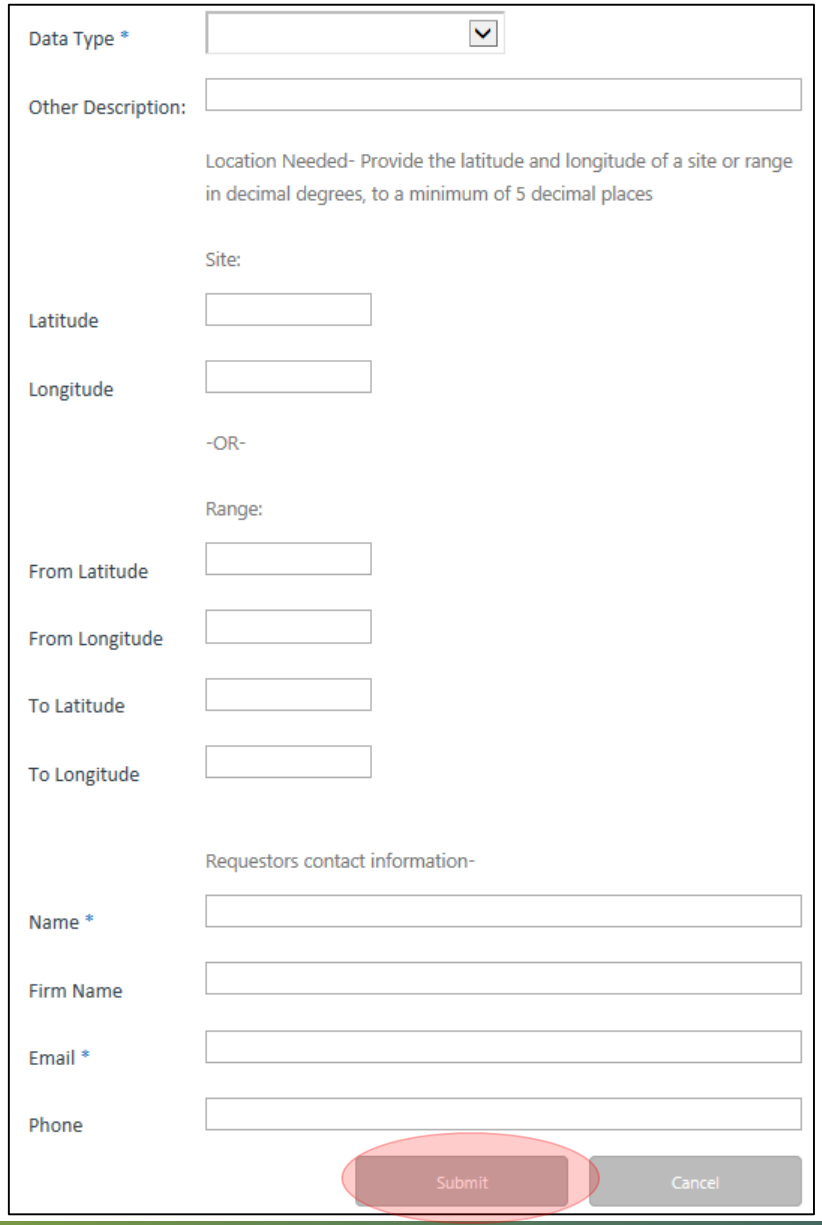
CLOMR/LOMR- Submittals

- After uploading the zip file, a form will pop up for you to fill out; once complete, select “Save”.



Note: There is no need to “check-in” the document.

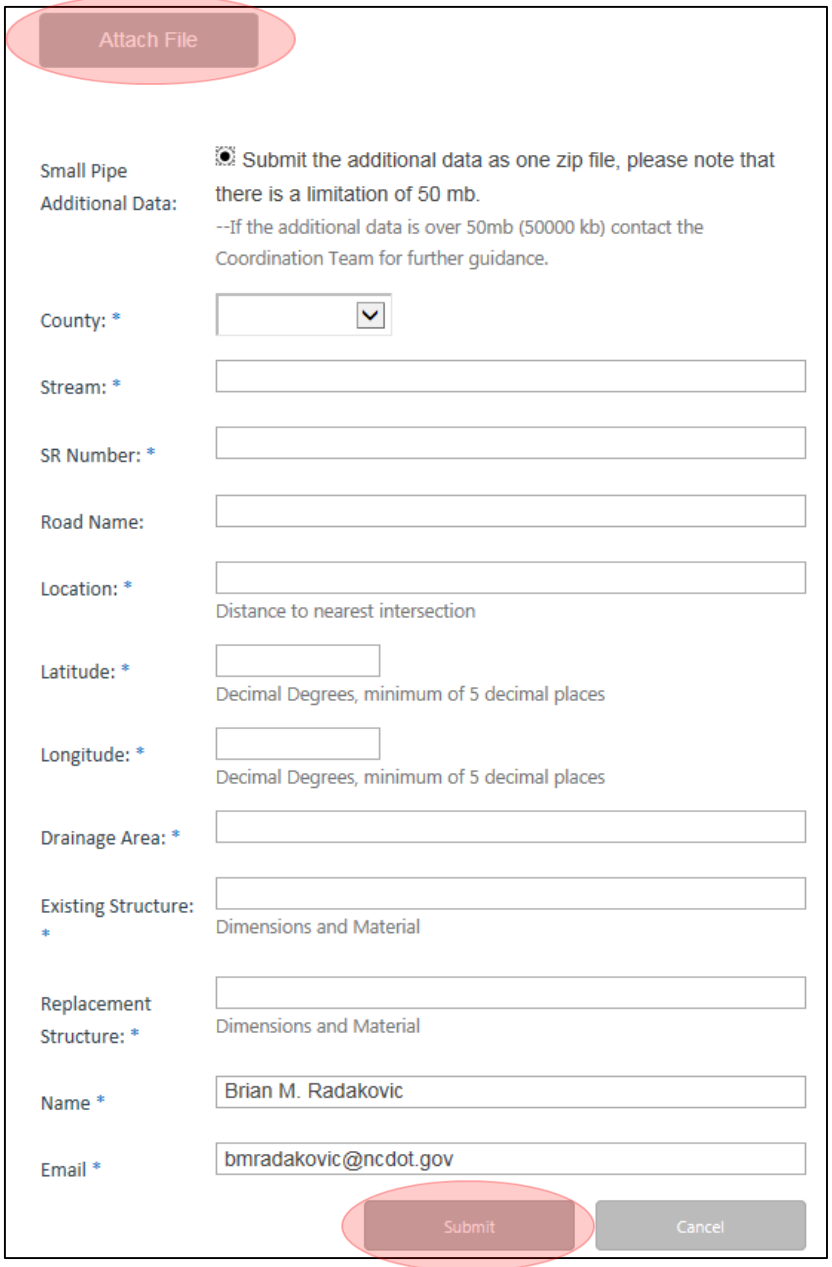
Flood Insurance Study Data Request



- Provide the data type required:
  - Effective Model
  - Preliminary Model
  - Other: (provide details)
- If the request involves a specific location provide the site coordinates, otherwise provide the begin and end coordinates on the stream for the range needed.
- Coordinates need to be in decimal degrees to a minimum of 5 decimal places.

Small Pipe Maintenance- Submittal Form

- Attach the supporting computations as a compressed (zip) file. Please note that there is a size limitation of 50mb (5000 kb). Supporting hydraulic computation examples can be found on the Hydraulic/FEMA Coordination site
- Fill out all required fields



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Replacement of Emergency Flood-Damaged Structures

Emergency Replacement

- Follow the protocol detailed in the October 27, 2016 memo from the Chief Engineer and reiterated in the *2016 Guidelines for Drainage Studies and Hydraulic Design*, Chapter 15, Section 15.8 Replacement of Emergency Flood-Damaged Structures.

- This protocol only applies to emergency replacements. For the Division-managed STIP projects and the routine maintenance tasks, the Divisions' staff should follow the MOA to ensure full compliance with the NFIP.

Any Questions ?

References

- Memorandum of Agreement (MOA) between NCDOT and NCFMP as modified August 12, 2016
- NCDOT *2016 Guidelines for Drainage Studies and Hydraulic Design*, Chapter 15 Floodplain Management
- Title 44 parts 59, 60, 65 and 70, Code of Federal Regulations (CFR)
- Websites:
  - FRIS-Flood Risk Information System
  - NCDOT Hydraulics/FEMA Coordination Connect Site
  - NCDOT Hydraulics/FEMA Coordination Team Site (Permission Required)